Patent Claims:

1. A nanoparticular carbon structure (NCF) with carbon in hexagonal and/or cubic modification as well as with oxygen, hydrogen, nitrogen and non-combustible admixtures which comprise nanoparticular, fullerene formations and are stabilized.

2. The NCF as set forth in claim 1, ***characterized by*** the following composition of its elements in mass percent: carbon 86.0 to 98.0 %, oxygen 1.0 to 6.0 %, hydrogen 0.5 to 1.0 %, nitrogen 0.5 to 2.0 % and non-combustible admixtures 0 to 2.0 %.

3. The NCF as set forth in claim 1 or 2, ***characterized in that*** the material particles and clusters have ogival shapes on the inner and outer surface of which open pores are localized.

4. The NCF as set forth in any one of the afore mentioned claims, ***characterized in that*** open pores have dimensions of 12 to 100 Å according to BET.

5. The NCF as set forth in any one of the afore mentioned claims, ***characterized by*** a volume adsorption of at least 300 J/g, preferably of at least 500 J/g and up to 700 J/g.

6. The NCF as set forth in any one of the afore mentioned claims, ***characterized by*** a refraction index in excess of 2.55.

7. The NCF as set forth in any one of the afore mentioned claims, ***characterized by*** an absorption limit of the material in the UV range of 220 up to more than 300 nm as well as in the near infrared of more than approximately 2810 cm^{-1}.

8. The NCF as set forth in any one of the afore mentioned claims, ***characterized in that*** it is in the form of a dark grey powder.

9. The NCF as set forth in claim 8, ***characterized in that*** its specific weight in the non-compacted state ranges approximately between 2.3 and 3.0 g/cm^3.

10. The NCF as set forth in any one of the afore mentioned claims, ***characterized in that,*** in X-ray phase analysis, it only delivers one single phase peak, namely that of the cubic modification of the carbon (diamond).

11. The NCF as set forth in any one of the afore mentioned claims, ***characterized in that*** a formation of central crystals of the cubic grid phase is surrounded by a carbon shell cage, said shell cage consisting of a regular arrangement of pentagons and hexagons.

12. The NCF as set forth in any one of the afore mentioned claims, ***characterized in that*** the monocrystals appear colorless.

13. The NCF as set forth in any one of the afore mentioned claims, ***characterized by*** optical isotropy.

14. A fullerene shell ("onion-like carbon") in which about 1,800 to 2,000 carbon atoms comprise in the type of a container a nanosized core with cubic crystal structure and about 900 to 1,000 surface atoms, preferably comprising NCF as set forth in any one of the afore mentioned claims.

15. A method of producing fullerene shells, ***characterized in that*** NCF as set forth in any one of the claims 1 through 13 is thermally treated in vacuum or in an inert gas atmosphere, in argon atmosphere for example.

16. A method of producing NCF, more specifically NCF as set forth in any one of the claims 1 through 13, ***characterized in that*** the initial substances carbon, oxygen, hydrogen, nitrogen and non-combustible admixtures are transformed by an organic energy carrier with negative oxygen balance in a closed volume in inert gas atmosphere under atomic hydrogen plasma and that the reaction product is cooled and stabilized thereafter.

17. A method of producing NCF with primarily almost monocrystalline morphology, more specifically as set forth in any one of the claims 1 through 13, ***characterized in that*** a substance combination of organic energy carriers, primarily mixtures of $C_7H_5N_3O_6$ (oxygen value: -73.9 %) and cyclotrimethylenetrinitramine (oxygen value: -21.6 %)

with a mass of 15 kg is brought to chemical conversion with negative oxygen balance in an enclave chamber having a free space volume of 100 m³.

18. The method as set forth in claim 17, ***characterized in that*** a short-term physical conversion of the hexagonal carbon crystal grid structure into the cubic structure (diamond grid) as well as into the fullerene spatial grid structure ("cage" structure with >>C_{240}) according to the martensite mechanism occurs realizing a topological temperature platform of between 3,000 to 4,500 °C; implementing a local pressure level of at least 4.5 GPa, forming dynamic inverse shockwaves in the range of more than 100,000 atm as well as limiting the short-term physical reaction time of chemical conversion to less than 7.5×10^{6} s.

19. The method as set forth in claim 17 or 18, ***characterized in that,*** for the time of the chemical reaction, an atomic hydrogen plasma is formed to prevent the fullerene structure produced from regraphitizing.

20. A method of producing NCF with polycrystalline morphological structure (poly-NCF, PNCF), more specifically with NCF as set forth in any one of the claims 1 through 13, ***characterized in that,*** after producing NCF with primarily almost monocrystalline morphology, said NCF is treated using a CVD-assisted sintering process in a vacuum system at pressures ranging between 8.0 and 10.5 GPa and at temperatures ranging from 1,000 to 1,500 °C with subsequent mechanical communition.

21. The method as set forth in claim 20, ***characterized in that*** a carbon containing carrier gas, preferably methane, is diffused into the spatial pore system of the NCF structures.

22. A method of producing a nanoparticle-combined NCF compound, ***characterized in that*** the nanoparticles are first dispersed in a polar and slightly viscous solvent and that, for producing the compound, the predispersed substances are combined with a fluid comprising the same solvent.

23. A lacquer system, more specifically produced in accordance with claim 22, ***characterized by*** a modification with NCF particles according to any one of the claims 1 through 13.

24. Use of NCF particles, more specifically according to any one of the claims 1 through 13, for modifying the mechanical properties of lacquers (coatings), more specifically of 2K-PUR mat lacquer systems.

25. A lubricating lacquer system (solid lubricant) with NCF, more specifically with NCF as set forth in any one of the claims 1 through 13.

26. Use of NCF, more specifically as set forth in any one of the claims 1 through 13, for producing a nanoparticle-combined lubricating lacquer system for improving the sliding properties of the lubricating lacquer system.

27. A nanosuspension (nanocompound) on the basis of poly-NCF with the following composition (values given in percent by weight): poly-NCF about 1.4 %, distilled water about 95 %, Aerosil® Å300 about 3.6 %, Polyridon about 0.007 % and NaOH(s) 0.012 ± 0.004 %.

28. Use of an aqueous nanosuspension on the basis of poly-NCF, more specifically of poly-NCF as set forth in claim 27, for high-precision polishing.

29. Water soluble poly-NCF paste (water-free) with the following substance composition (values given in percent by weight): Poly-NCF about 5.5 %, Aerosil® Å300 about 9.5 % and PEG 400 about 85.0 %.

30. Use of a water soluble poly-NCF paste (water-free), more specifically of a paste as set forth in claim 29, for high-precision polishing, preferably for end polishing of spherical special stepper optics made from CaF_2 with polishing pads provided with a special pitch coating.